THE VETERINARY RECORD

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Meat Inspection in Edinburgh.

According to a recent issue of *The Edinburgh Evening News* that city seems satisfied with their system, and under the above heading is published a long article based largely on Dr. Williamson's annual sanitary report. The subject is growing threadbare, but there are still many towns in which we may hope that V.S. will find full employment as inspectors. We extract the following :—

"It must be obvious to anyone who cares to give the subject consideration that the duties involved by a proper and adequate system of meat inspection are not of a kind that the 'man in the street' could be expected to satisfactorily fulfil. Rather would they strike one as being of a nature demanding not only more than average intelligence and tact, but an absolutely special training--in other words a sound veterinary knowledge. That the Legislature and local authorities have only recently begun to realise this fact shows how perfunctorily the work of supervising the public meat supply has hitherto been carried on. The functions of a meat inspector, indeed, have been, and are still in the majority of towns regarded as being of an 'orra' character, which any superannuated individual could discharge, when he had proved himself unfit for anything else, and a glance through the report of the Tuberculosis Commission recently published revealed the fact that with the notable exception of Edinburgh, and in a lesser degree Manchester, every class but the proper one, namely, veterinary experts, were represented." It then enumerates some of the varieties of the extradesmen who officiate in various towns, and goes on to say—"While even in Glasgow with all its claims to being the "best governed city in the Kingdom," the inspection is carried out by the police assisted by three butchers. The incapacity of such individuals to judge of the fitness and unfitness of animal flesh for human consumption hardly requires to be demonstrated, and it is to the credit of Edinburgh that it was the first to recognise the anomalous conditions of such a system and to adopt a more enlightened policy. The staff of meat inspectors in the city consists of three qualified veterinary surgeons, with Dr. Williamson as chief, and to quote the testimony of the Tuberculosis Commission—In the Edinburgh slaughter-house the system adopted was more nearly on the lines of the best continental abattoirs than it was our fortune to see in any other part of the United Kingdom."

The killing is done in full view of the inspectors, one of whom is continually on duty from the time the slaughterhouse opens until it closes. The inspector is always on the move, and the vigilance and expert knowledge displayed are such that little or nothing can escape his notice. When it is stated that on an average over 700 animals are slaughtered daily, some idea of the responsible and arduous nature of the duties of the inspector patrolling the slaughter-house may be gathered, and in this connection it might not be out of place to suggest that the efficiency of inspection, and therefore the health interests of the public would not lose by the hours during which the slaughter-house is kept open being reduced. In this matter Edinburgh is behind Glasgow and other large cities, and that it is so is all the more surprising in view of the assurance that even the butchers would not suffer by a rearrangement in the direction suggested. The facilities for inspection afforded in the Fountainbridge slaughter-house appeared altogether satisfactory.

From a table prepared by Dr. Williamson showing the diseases found in the carcases seized in the slaughter-house and throughout the city, it appears that the predominant cause was tuberculosis, yet the proportion condemned was only 6.4 per cent. of the total cows slaughtered. The extent of disease which should justify the total condemnation of a carcase is a vexed question among the butchers and others interested in the meat trade. and one upon which it is impossible to generalise, but with the employment of pathological experts as meat inspectors the possibility of mistakes being made, and injustice meted out, is greatly minimised. As one butcher put it, "We have now a chance at anyrates."

In addition to supervising the slaughter-house, meat markets, and shops, the Edinburgh inspectors systematically watch the various means of ingress to the city. The railway stations are visited regularly and the meat sent in from the country closely examined, while any flesher's cart or vehicle carrying dead meat into the city can be stopped on the street and searched. Several seizures were made at the Waverley station last year, while the surveillance under which the vehicular meat traffic is placed is so strict that it is almost impossible to "run the blockade."

The Tuberculosis Congress.

This latest Congress on Tuberculosis has finished its sitting, and the continental delegates have had time to reach their homes In a few weeks the full text of the papers will be printed, but one of the principal speakers has stated that little that is new has been brought forward. So far as the veterinary profession is concerned the chief point is Prof. Virchow's strong indictment of milk as a means of propagating the disease.

CASES AND ARTICLES.

RE SCHMIDT'S TREATMENT OF MILK FEVER

In *The Veterinary Record* of last week a letter appears from Mr. Harvey, wherein he asks the gentlemen of the N.V.A. to fill up and return the forms supplied to them in order that the results may be given.

Not having myself been favoured with one of those forms, I think it may assist in forming an opinion if I record my experience in that method of treatment.

All the subjects, six in number, were large shorthorn cows. Nothing whatever in the way of food or medicine was bottled down them. They all regained consciousness, ate and drank, and lived from 3 to 5 days after "going down." Their temperature rose, 3 died of a form of pneumonia, and 3 recovered, but two of them lost one quarter of their udder.

Personally, I don't think much of the treatment, I have much better results with my own.

I would just like to mention another *new and successful* method of treating "milk fever" cases. Being from home one day, my son (not a V.S.) attended the case for me. He had seen me treat these cases in so many different ways, so he thought he would adopt a method of his own which he knew would do no harm. He accordingly armed himself with a small hypodermic syringe and a small bottle containing aqua communis, and also a bottle of ammoniacal embrocation. The owner was present when my son got there. After examining the cow carefully and informing the owner that it was a serious case, my son propped the cow up and clothed her comfortably, gave orders that nothing was to be bottled down her, and to turn her over on to the opposite side every four hours. He rubbed some of the embrocation on her back and loin, and *very carefully* injected hypodermically about 60 minims of the aq. com. He visited his patient again in the evening, and repeated the injection.

I went myself on the following morning and found the cow "up and feeding." I really believe that if this plan of treatment was adopted, there would be more recoveries.

JAMES WEBB, F.R.C.V.S.

A DEPARTURE IN HORSE SHOEING.

Allow me to call attention to a system of horse-shoeing which I trust may offer some advantages both to the horse and his owner, and if it prove a success will go a long way in divorcing the forge from the surgery, an end devoutly wished by many members of our calling. The system itself is by no means new, being simply that of heel, bar, and frog pressure, and it is only in the fastening of the shoe that there is departure from the ordinary mode. This is effected by screws placed in such a position up the centre of the horn, by means of course of the screw holes being at an angle that shall prevent their going in any other direction. These screws are sunk into the shoe to three-fourths of its thickness, and when the shoe is worn down to their heads fresh shoeing is indicated. The shoe itself is a three-quarter one, and its borders are slanting, being in fact an exact prolongation of the hoof. The conditions imposed on the preparation of the foot are *absolute*, viz., that on no consideration shall the foot be rasped or pared on its external borders, all reduction is to be on the plantar surface *only*; that the heels, bars, and frog shall be left alone altogether, and the sole allowed to desquamate naturally. I am fully aware that the system will apply only to sound horn, and it must be left to such authors as Broad, Fleming, Hunting, Dollar, Wheatley, and a host of others to legislate for the feet of animals that are semi-diseased; for while we all admit that horses in this country cannot work without some covering for the feet, it is also admitted that shoeing is the cause of much lameness, and it follows the lighter the shoe and the more the foot can be brought into contact with the ground without injury, the greater the comfort to the horse and the longer his serviceability.

I know I must prepare myself for much criticism, and fully expect quite a "hornet's nest" to reach me, but I only ask a "fair field and no favour" and leave it to you to give me a notice of my invention by publishing this when you have space. I may mention that through the courtesy of Messrs. Hammond and Hussey of this place I have tested these shoes with a very fair success.

HENRY DYER,

Croydon, May 29.

Royal College of Veterinary Surgeons.

ANNUAL OBITUARY.

The Registrar's Report shows that the deaths of Members of the College have been for the twelve months, 48. The names are appended as below:

Name.	Address.
ARIS, BENJAMIN BLUNSOM	Wellingborough.
BARKER, RICHARD	Middlewich.
CHASE, HENRY PAUL	Tiverton, Devon.
COLLINS, THOMAS	Bradford.
COOK, BENJAMIN	Swansea.
COOPER, JOHN HIXON	Dover.
DALBY, ALBERT EEWARD	Docking.
DARDIS, PATRICK J.	Rathowen.
EDWARDS, HENRY	St. Alban's, Herts.
ELMER, JOHN	Limehouse.
FERRIS, JOHN	A.V.D. (retired).
FLAVELL, GEORGE FREDERICK	Sturminster Newton.
GIBBINGS, HENRY DURANT	London.
HAMPTON, PETER	Arbroath, N.B.
HANCOCK, HENRY MICHAEL	Uxbridge.
HARRIS, Vet.-Lieut. H. COGAN	
HASLAM, Vet.-Capt. ALF. JOSEPH	
HORNBY, FRANCIS FOSTER	Stockton-on-Tees.
HOOPER, HENRY WILLIAM	Chelsea.
HINDE, WILLIAM HALL	Downham Market

Name.	Address.
IRISH, JOSEPH HENRY	Cosham, Hants.
JOHNSTONE, ROBERT EGWIN	South Shields.
KINSEY, J. ROWBOTHAM	Macclesfield.
LYONS, DANIEL FRANCIS	Rathkeale.
MCNAIR, ROBERT	Blairgowrie.
MCONIE, PETER	London.
MENZIES, DAVID	St. Austell, Cornwall.
MILLS, WILLIAM HOPKINS	Ardaragh, Newry.
MILLWARD, HUGH HANNAY	Wincanton, Somerset.
MICHELL, ALBERT EDWARD	St. Austell, Cornwall.
OLIVER, ALFRED CLIFFORD	Worksop.
POULTON, CHARLES GEORGE	Coggershall, Essex.
POOLE, HENRY EDWARD	Ramsgate.
ROBERTS, WILLIAM IRWIN	Oswestry, Salop.
ROGERSON, EDWIN	Bedford.
RULE, HENRY MARTIN	Buntingford.
SHAWCROSS, ARTHUR	Warrington.
THURSTON, JAMES	Fressingfield.
TAIT, JOHN	Annan, N.B.
TAYLOR, THOMAS	Bournemouth.
THOMSON, HUGH O.	Edinburgh.
TOZER, HENRY	Woolwich.
WALKER, JAMES DAVIS	Stourbridge.
WHITEMORE, GEORGE SANSOM	Langport, Somerset.
WILLIAMS, THOMAS ROBERT	Caerwys, Flintshire.
WILLOWS, SEPTIMUS FREDK.	Cirencester.
WYER, GEORGE	Grantham.
YOUNG, HENRY DUNLOP	Stewarton, N.B.

VETERINARY SOCIETIES.

ROYAL VETERINARY COLLEGE V.M.A.

The 274th ordinary general meeting was held in the College on Friday, 26th May, 1899, at 6.30 p.m., Mr. A. Robb in the chair. There were present Mr. J. B. Walker, M.R.C.V.S. (hon. sec.), Mr. H. A. Woodruff, M.R.C.V.S., and 21 members.

Mr. JOHN HOBDAY, by the courtesy of Mr. Wallis, M.R.C.V.S., South Mimms, exhibited the fractured sessamoid of a horse, the accident causing the injury having taken place in a point-to-point steeplechase in which the animal was engaged.

Mr. MCILVENNA then read an essay on "Distemper" which, needless to say, was well received, as indeed it thoroughly deserved to be, coming as it did from one well qualified to deal with such an important and interesting subject.

The discussion of Mr. Rait's essay "Some Forms of Hernia" was opened by Mr. Brodie and carried on by Messrs. McIlvenna, Woodruff, Allen, and Siddall.

Votes of thanks to the Essayist and Chairman brought the meeting to a close.

J. M. TATE, *Assist. Sec.*

SOUTH DURHAM AND NORTH YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

A meeting of this Association was held on Friday, March 10th, 1899, at the North Eastern Hotel, Darlington. In the temporary absence of the President, Mr. J. H. Taylor, one of the vice-presidents, took the chair. There were also present Messrs. C. G. Hill and W. N. Dobbing, Darlington; A. Peele, West Hartlepool; P. Snaith, Bishop Auckland; John Wilson, Yarm; G. E. Gibson, Sedgefield; E. H. Pratt, Northallerton; W. H. Blackburn, Barnard Castle; G. R. Dudgeon, Sunderland; Prof. Mettam, Edinburgh; Dr. Hern, Darlington; and W. Awde, Stockton-on-Tees.

Apologies for non-attendance were received from Messrs. E. R. Gibson and H. Peele.

The minutes of the previous meeting were taken as read and confirmed, proposed by Mr. A. Peele, seconded by Mr. J. Wilson.

CASES AND SPECIMENS.

Mr. WILSON produced a spinal cord taken from a horse which had suffered from cerebro-spinal meningitis.

Mr. PEELE mentioned a case recently met with of a horse which had been off work six weeks. On being taken out of the stable for the first time, when he returned showed abdominal pain and death resulted. On post-mortem the diaphragm was found to be ruptured, and part of the bowels protruding through the opening which were quite black in colour.

Prof. METTAM had met with a Blenheim spaniel in which the testicle was sarcomatous, and was removed in the ordinary way by castration. In reply to a question he stated that melanotic sarcoma was found usually in red cattle; he had seen it in a white one, but it was much more common in red. He had also met with an animal with a dislocated acetabulum, and the limb was carried backwards.

Mr. TAYLOR was called to a hunter about 4 p.m. when it showed abdominal pain, breathing little affected, began to walk round and round the box and dropped dead about 1 a.m.

Mr. PEELE nominated Mr. G. R. Dudgeon, M.R.C.V.S., Sunderland, for membership, seconded by Mr. Snaith.

Mr. DOBBING nominated Dr. Smale as an honorary associate, seconded by Mr. Wilson.

NEURECTOMIES AND THEIR SEQUELÆ.

By A. E. METTAM, B.Sc., M.R.C.V.S.

A neurectomy, as distinguished from a neurotomy, is excision and removal of a portion of a nerve; the latter is merely section. In both operations the results may be the same. The peripheral distribution of the nerve is cut off from the centre or centres, and sensation or motion, one or both, is lost, according as the nerve is sensory or motor, or mixed. Neurectomy, or neurotomy as it is most often called in this country, has been performed for many years to relieve incurable lameness of deep seated origin, which has proved resistent to treatment. It has for its chief aim and object the removal of suffering and the prolongation of the working life of animals that would otherwise be unfit for service. In no case is the practitioner justified in performing the operation as a means of gain to the owner, beyond prolonging the usefulness of the animal. The operation is a remediable measure pure and simple. It is not my intention to describe the several operations—that is unnecessary—but merely to point out when they are indicated, and to discuss the results that follow.

Neurectomy in the fore limb is performed either upon the median nerve, or upon the plantars, both internal and external. Median neurectomy is of comparatively recent introduction, and is performed upon the median nerve in the forearm just below the elbow-joint. This operation, severing the main nerve of supply to the limb, will affect an extensive area, including the subjacent structures, the whole of the inner surface down to the hoof, the anterior surface, the posterior surface below the knee, and a large part of the outer surface of the metacarpal and digital regions. This somewhat irregular surface is due to the ulnar nerve coming in—a nerve that not only is motor to a portion of the flexors of the forearm and digit, but also is cutaneous behind the forearm above the knee, and in

part forms the external plantar nerve. An illustration of the distribution of the ulnar nerve we often unwittingly demonstrate to ourselves in our own person. The ulnar nerve is the "funny bone" of our youth, and a blow delivered over it will set certain of our fingers tingling to their tips. The ulnar nerve supplies the outer surface of the middle finger, and this, we know, corresponds to the external surface of the horse's digit. The external plantar then is formed of fibres that have been derived from the median, together with their contributory fibres from the ulnar nerve. I would ask you to keep this in your mind for a moment, while I refer to the diseases which lead up to the operation. Median neurectomy was intended to relieve those forms of lameness which had their seat above the site of plantar neurectomy. Briefly, these are chronic tendinitis, and diseases affecting the bones and articulations of the knee. In addition to these, we may add incurable disease of the fetlock and surrounding structures, where the lesion has extended upwards and involves the lower metacarpal region. It of course follows that in all cases where operation is determined upon, that no acute disease is apparent in the limb, or the results are likely to be disastrous. It has been gravely asserted by an Italian veterinary surgeon that median neurectomy had been followed by good results in shoulder lameness, but I think we may agree with Pellerin that here was evidently a case of mistaken diagnosis. We are all liable to err, and the similarity under certain conditions of foot and shoulder lameness has been insisted upon in the schools for many years.

Plantar neurectomy.—Median neurectomy has the advantage of one operation sufficing for a limb, but in plantar neurectomy it is necessary to sever the external and internal nerves—to perform two operations upon the same limb. The practitioner has a choice of a high or low operation, as it is termed, above or below the fetlock, but I think I am justified in saying that in the majority of instances the high operation is chosen. The nerve in this situation is readily discovered in its relation to the deep flexor tendon, but the nerve in the lower operation is not so easily found; moreover the nerve of the upper operation (the plantar nerve) is to the lower nerve (the posterior digital nerve) almost as the median nerve is to the plantar itself. I mean the plantar nerve supplies a greater area than the posterior digital, for the same reason as the whole is greater than a part. For while we may assume that the plantar nerve practically supplies the whole of that part of the limb up to and including the foot upon the surface of which it lies, the posterior digital or posterior branch of the plantar is distributed to the half of the fleshy frog, os pedis, navicular bone and os coronæ, and the pedal articulation upon its own side. But although only a moiety of the portion of the foot is supplied by the posterior division of the plantar nerve, who shall say that it is not the most important? Is it not here that most cases of incurable lameness have their origin? Is not neurectomy the sheet-anchor of the veterinarian, for navicular arthritis, for incurable lameness with its seat in or neighbouring this joint? Because of the relation of the posterior digital nerve to the parts mentioned this nerve is cut in the lower operation, for while it removes sensation, as we term it, from the diseased parts it still permits other parts of the foot remaining in the normal state. The anterior digital nerve or subdivision of the plantar supplies especially the coronet above the toe, that is just lateral to the middle line passing towards the quarters, and it is this nerve which is involved and transmits sensation in pyramidal point disease, in that form of necrosis which occasionally is found affecting the peak of bone projecting upwards from the pedal bone in front of the articular surface, a process of bone that receives the insertion of the extensor pedis tendon. The anterior and middle digital nerves are extended also to the laminæ, and they are the nerves involved in laminitis. It is interesting to note further that these digital nerves have upon them the peculiar bodies that are known as Pacinian corpuscles, and that similar structures are to be found upon the digital nerves of man. The Pacinian corpuscles are very numerous in the frog, but they also may be found upon the nerves of the coronary cushion.

Plantar neurectomy is performed for incurable disease of the feet, but, as we know, there are several factors to be taken into account before neurectomy can be advised. The sequelæ, or possible sequelæ, are so severe and so disconcerting that the reputation of a practitioner would suffer if he did not safeguard himself by taking his client into his confidence, and pointing out the possible contingencies.

Tibial Neurectomy.—As in other affairs surgery has its fashions. To-day a certain antiseptic is universally employed, yesterday it was somebody's knife, to-morrow it may be a new method of docking. A few years ago tibial neurectomy was common, now-a-days it is only rarely performed. Tibial neurectomy fell into desuetude partly because the sequelæ were untoward and serious, frequently involving the life of the patient, and partly because the operation is not an easy one, the nerve not being readily found. The operation was devised for the relief of all the conditions for which plantar neurectomy has proved efficacious, but in addition for the relief of spavin and other painful affections of the hock. I put here "and other painful affections of the hock" because some affections of the hock included under the category of spavin are not spavin at all, or, to put it somewhat differently, the term spavin is made to include a number of lesions involving the hock. Spavin is something very much more than the ossific deposit recognised clinically by the enlargement upon the hock. The bony deposit is to my mind merely the result of the disease, and is an indication of the recuperative powers of nature. Any movement between the several bones of the hock must be infinitesimal, but all the phenomena leading up to necrosis of the articular cartilages and exposure of the bone must be accompanied by severe pain, and this pain at first will be intensified by concussion. By and by the concussion will cause a benumbing, and the nerves will not convey away that sensation—exaggerated sensation—which we term pain. It is supposed that a nerve impulse consists of a succession of waves passing along the fibre, and that if waves are communicated to the fibre that alternate with those normally passing, the result may be nullity—the two will antagonise each other. This may explain the reason why in certain forms of incurable lameness, as soon as the animal gets warm, after it has gone some distance, the lameness gradually disappears. It, however, reappears when the animal stands for some time, and it is for this reason and because we are aware of this fact that we require our patients to stand some time after exercise, since it is well known that lameness otherwise difficult to detect is most readily shown when the animal first leaves the stable. Tibial neurectomy is performed upon the posterior tibial nerve, upon the inner surface of the limb, about a hand's breadth over the point of the hock. The nerve is placed just behind the fleshy swelling, the belly of the deep flexor of the digit, in front of the gastrocnemius tendon. In tibial neurectomy we have an operation similar to that of the median, yet it is even more severe than that of the median. The posterior tibial nerve divides into the two plantars which traverse the tarsal sheath, and beiow the hock behave as the plantars do in the fore limb, but section of the tibial nerve deprives all the parts below of sensation. There is no portion of the plantar metatarsal nerve that corresponds to the ulnar nerve in the fore limb. Authors and clinicians have sought to prove that the absence of such a branch explains the untoward results following section of the tibial

nerve; the ulnar nerve being considered as of trophic value, that is regulating the supply of nourishment to the parts rendered insensible.

Results of Nerve Section and Excision.—In the operations performed in veterinary practice, loss of sensation results in parts below the site of the operation. In median neurectomy, as we have seen, such is not the case, owing to the ulnar nerve being still intact, and connecting the foot with the centres. I remember reading of an instructive case in one of the Continental journals. A median neurectomy had been successfully performed—median neurectomies are not always successfully performed; sometimes, I am afraid, the nerve is not even touched—and still the animal went lame. Most often the lameness disappears soon after the animal moves, but not always is this the case, and under these circumstances it may be that the abnormal movement is not lameness as ordinarily accepted and understood, but a halt or limp due to changes in the limb that have been induced by the previous lameness, and by the animal saving the limb. The horse is not remarkable for its intelligence, for its reasoning power, but it can appreciate the whip from previous experience. It does many things from use and wont, and it will go lame for a time, I am convinced, upon a limb where there is absolutely no sensation, and merely because it has become accustomed to save that limb. This is by the way, but I am not alone in believing that some animals, like some men, are guilty of malingering. The patient above mentioned remained lame, and it was found that there was still sensation in the outer part of the limb. The surgeon cut down upon and excised portion of the ulnar nerve—not a difficult operation—and the animal then trotted sound. The painful part was supplied by the ulnar nerve.

Loss of sensation, and the animal free from pain and exhibiting no signs of lameness, is the desired end, but other results may follow, which are neither looked for nor welcomed. As we all know, the non-sentient foot can pick up a nail or be pricked in shoeing, and no one be aware of the fact till pus appears at the coronet, until the horn is underrun, and the hoof practically ready for casting. It is a disagreeable sequel, and one that should always be considered as probable, and one against which the client should be warned. The greater part of the hoof may be shed, separated off, and yet a new hoof will form, and after months—six months is the shortest time I can find recorded—the foot may be encased in a hoof that will carry a light shoe. At nine months, light work on soft ground was attempted and done. But in most instances after neurectomy has been performed, the owner will not, and indeed should not be advised to go to further expense in keeping animals until the horn has grown again. Changes, peculiar changes, have been noticed to occur in the tendons and bones as the result of the operation. The tendons degenerate and become infiltrated with, and in part converted into, a peculiar gelatinous tissue. In this condition the tendons, readily give way and rupture. The bones, the navicular especially, alter, and the latter has been found fractured, although there had occurred nothing to explain it, so far as violence and motion were concerned, since the animal was standing in the stable. These changes, which we have no intention of considering here, are most probably due to trophic influences; they are changes induced by mal-nutrition, by the loss of what we call tone, and which otherwise we cannot explain. It appears, however, that tendinous tissues, connective tissues, are prone to degenerative changes, when their nutrition is interfered with, when they lose touch with the nerves that order their well-being. The influence of the nerve upon the connective tissues of the limbs appears to be somewhat similar to that of the internal secretion of the thyroids upon the body generally. Myxœdema follows removal or disease of the thyroids, a peculiar gelatinous infiltration of the connective tissues, and like results, partial and local in their effects, certainly seem to follow section of the nerves in certain animals. Experimentally it has been found that if the sympathetic nerve in the cervical region of a young rabbit be cut, that the ear grows more rapidly than its fellow, and it has been shown that section of the facial nerve is followed by an increased size of the maxillary bones. In these cases the explanation given is that of increased vascularity, and as a result a form of hypertrophy. The hind limb of a dog was observed to waste as the result of section of the sciatic nerve, and here the disuse due to the paralysis induced must be offered as an explanation of the sequel. It is extremely difficult to give the true cause, for it seems as likely to be due to interference with the blood supply as to absence of movement. In the case of the sciatic, the vaso-motor nerves will doubtless be injured in the section, and any deficiency in the vascular supply will produce atrophy—as we know will disuse. Section of the fifth nerve is found to be followed by inflammation of the eyeball, ulceration of the cornea, followed by perforation and suppuration. The fifth nerve is, of course, the nerve giving ordinary sensation to the structures of the eyeball. It is explained, in opposition to the view that the fifth nerve is trophic to the eyeball, that the eye, after section of the nerve, being now insensitive, is liable to be injured by foreign bodies that would otherwise have been removed by the lids or been avoided. Moreover, the lachrymal gland will be paralysed, and the normal secretion will be arrested, and the offending objects—they may be bacteria for instance—will not be washed away. The suppuration, and the phenomena leading up to suppuration, are due, then, to microbic invasion and infection, and that this is probably the case is show by another experiment, that if the eyeball is carefully shielded from all possible injury and infection, the phenomena mentioned above are not observed to occur. But have we not a similar illustration in practice, do we not know that in numerous cases the uninjured insensitive foot remains free from suppuration until the time arrives when it is inoculated by an unclean nail, and the appearance of pus at the coronet is the result? Whatever may be the explanation of the sequelæ observed as the result of nerve injury, I think we cannot get over the fact that the tissues are vitally impaired, that they lose their power of resistance to external violence, and they can only repair with difficulty, in an abnormal fashion or not at all. This loss of what we, for want of a more definite and expressive term, call tone is often exemplified in cases of general paralysis. In what are called bedsores we have sloughing of skin in parts where no friction has been applied, and where the animal has not been able to injure itself; and, according to Waller, "it is a remarkable fact, almost amounting to proof of a real trophic disturbance, beyond what might be attributed to coarse injury, that a paraplegic dog, resting on the ventral surface, develops a dorsal sore, analogous in situation with the 'bedsore' that is apt to occur in a paraplegic man." An explanation of this is difficult, unless there are found to be nerves sent out from the spinal cord in certain regions, whose function it is to control the vascular tone of parts; and this we may assume is the case, for the sympathetic nervous system is limited as regards its origin to the dorsal and anterior lumbar regions, and the nerves from this sympathetic system reach the periphery by following the course of the nerves to the limbs and to the periphery. Section or disease of the cord will affect the parts below, and in some degree those above, the site of the lesion, and along with the spinal nerves the rami communicantes to the sympathetic will be involved, and the parts supplied through the ganglia to which these rami go. That changes and grave alterations occur is only too well known, whatever the explanation, and we

can only hope that further experiment will give us all the necessary data upon which to build an explanation that will satisfy all the facts.

Effects of Section upon the Nerve.—A nerve, take as an example the plantar nerve, is provided with a sheath of connective tissue that surrounds the various bundles of nerve fibres that compose it. This sheath, the epineurium, carries the blood-vessels to supply the nerve and the nervi nervorum, the nerves of the nerves. Passing internally and isolating the various bundles is a perineurium, and within the bundles an endoneurium, connective tissues peculiarly adapted for their special purpose. A nerve bundle is made up of a number, more or less great, of nerve fibres, and these fibres not being all of one size in a composite nerve, may frequently be traced even anatomically to their origin. Nerve fibres are motor or sensory, according to their origin. So far as I know, there is not any difference in structure between a sensory or motor fibre. The fibres agree in being in direct relation with a nerve cell. In the cases of the sensory fibres the cell is placed in the ganglion upon the superior root of the spinal nerve from whence the fibre came. In the case of the motor fibre it is continuous with the axis-cylinder process of a motor ganglion cell in the inferior horn of the grey matter of the spinal cord. Indeed, the sensory nerve fibre is in connection with a nerve cell placed outside the cord, the motor fibre with a cell within the cord. The cell in the superior root ganglion has only one process which bifurcates. The relation of the process to the bifurcation is as the normal to the cross-piece of the letter T. One limb of the bifurcation passes centrally into the cord by what is termed the superior root, or that part of it between ganglion and cord ; the other joins the inferior root to form the spinal nerve. Both nerve fibres agree in growing from the centre to the periphery, and the nerve, the plantar nerve, has arisen as an outgrowth of nerve cells, situated within ganglia upon the roots of spinal nerves, or within the cord itself. Though both agree in direction of growth, they are opposed as to conducting nerve impulses. Sensory impulses pass centrally, motorial peripherally, and though in the case of the plantar nerve the majority of the fibres are sensory, yet we must not absolutely ignore those that are motor to even degenerated muscles or to pseudo-ligaments. The nerve fibres, or rather their integral portions, are outgrowths from nerve cells, and are as much the cell as the trunk of a tree is a tree. Cut off the axis-cylinder process, or what we have name the integral portion of a nerve fibre, and that nerve cell is cut off practically from the outside world. If the axis-cylinder process is that of a ganglion cell upon a superior root, that ganglion cell is isolated, save from neighbourly intercourse of adjacent cells. It is in the position of "splendid isolation" as regards the periphery. Similarly no matter how the stimulus may "ring up" a motor ganglion cell, and require switching on to its axis cylinder to ask a part to contract and do its duty, if such an axis cylinder is cut away from its ganglion cell it is as unlikely that the effect can follow stimulus, as a telephonist can speak with his friend after the exchange has cut the connection. Nay, more, the part that is cut off from the central mother cell must die just as much as a branch lopped off a tree must die. Both are separated from their source of support, and both must equally perish.

A nerve fibre, such as may be found as a constituent of a nerve of dissection and of operation, is composed of the following parts : —There is the essential axis cylinder, which is merely the process of a nerve cell, the axon. The axis cylinder is supposed to have a particular sheath of its own, the sheath of Mauthner. Enveloping the axis cylinder and its sheath is the medullary sheath of Schwann ; an insulating sheath composed of a fatty material named myelin, which is said to be supported by a network, a "neurokeratin" network that forms a fine reticulum around the axis cylinder, and in which reticulum the myelin is deposited. I am not certain that this "neurokeratin" network exists in fact, although I am aware important monographs have been written describing it, more especially by Gedoelst, whose researches are published in *La Cellule*, iii and v, 1887-89. I have examined numerous preparations that I have made from time to time, and I am not satisfied that the appearances are not artefacts produced by the perosmic acid. They are commonly found after the action of this reagent when it has been in contact with the tissues for an insufficient length of time. But this "neurokeratin" network need not detain us longer. The medullary sheath, or white substance of Schwann, is enveloped externally by the neurolemma, which is a structureless membrane with nuclei placed here and there reposing in a bed of protoplasm. There is only one nucleus for an internodal segment. If the nerve fibre is examined along its length it may be observed that the medullary sheath of Schwann shows constrictions, the nodes of Ranvier, and that where these nodes are the neurolemma comes quite close up to the axis-cylinder and its sheath. These nodes are not understood ; it is believed that they allow nutrition to reach the axis cylinder fibres, but, so far as I know, there is no proof of this. Matthias Duval looks upon these nodes as practically the meeting places of fat cells that are strung upon the axis cylinder as beads upon a string. For our present purpose we must keep the nodes of Ranvier in mind. These, then, constitute the nerve fibre, and for a moment let us examine the development of the nerve fibre. The axis cylinder is an outgrowth, as we have already mentioned, of a nerve cell. In origin it therefore belongs to the outer layer of the blastoderm to the epiblast, and is own cousin to the cells and nerve fibres to be found in the brain and spinal cord. The structures that envelop the axis cylinder are derived, however, from the mesoblast. The middle layer of the blastoderm and these structures are related closely to the connective tissues, muscles, bones, &c, all of which are developed from the cells of the mesoblast. Vignal and others have examined the developing and growing nerve fibres in ox and sheep embryos, and the phenomena are generally the same in all animals. As the axis cylinder grows and wanders further and further from its parent cell, still keeping up the connection by its thread-like connection, there appears upon it cells that are of mesoblastic origin, that are practically connective tissue corpuscles, and these connective tissue corpuscles produce the myelin which developes the axis cylinder and the neurolemma. The medullary sheath and the neurolemma are formed, then, by the agency of outside cells, and these cells have produced an insulating material, resembling in many particulars fat. But the likeness does not remain here. The similarity to a connective-tissue cell is still more complete. A connective-tissue cell has the property of storing fat within itself, and of giving up this fat and resuming its normal appearance and condition when the cell is called upon to give up its fat for the needs of the organism. It may again resume its character as a storehouse of nutriment when favourable circumstances arise. The connective-tissue corpuscle which has formed the myelin, and which lies dormant in its bed of protoplasm, may, when occasion arises, put forth its latent energy, as we shall presently see.

At a neurotomy or neurectomy the knife severs the nerve as we call it, cutting through the enveloping sheaths and the fasciculi of nerve fibres. The results to one are the results to all, and to escape confusion we will describe what occurs in a single nerve fibre. All the nerve fibre beyond the point of section that is peripherally being severed from its nursery and from its food supply, being cut off, as it were, from the fountain head, dies. The change is first observed in the myelin, which

speedily breaks down into droplets of fat. These are absorbed and removed. The axis cylinder next disintegrates. "A mixed nerve degenerates down to its ultimate distribution in muscle or in skin; the process is simultaneous throughout the length of the nerve, and does not gradually descend towards the periphery, there being no difference ecognisable between fibres in a nerve trunk near and far from the section. According to Ranvier, the earliest signs of change are detected in the intra-muscular nerve ends" (Waller). The rapidity of degeneration is greater in young animals than in old. "During the first period the signs are those of increased activity and hypertrophy of protoplasm, hypertrophy and multiplication of nuclei, causing interruptions in the medullary sheath and of the conducting medulla itself. During the second period absorption of the broken up fibres takes place, leading to their complete disappearance, and leaving nothing but a strand of connective tissue, which probably includes the actual primitive sheaths of the vanished fibres" (*Ibid*). As Waller very neatly puts it, the fibre (axis cylinder) when separated from its nurse the nerve cell, runs riot and destroys itself, The nerve fibres, therefore, beyond the point of section to all intents and purposes die immediately, and all sensation disappears and motor impulses are no longer possible. The time elapsing from section to total disappearance of the sectioned nerve fibres is about a month. The same changes are observed to occur in the nerve fibres still in connection with the nerve centres, but the degeneration in these does not proceed beyond the first node of Ranvier from the point of section. Further, the degeneration does not extend, and soon the axis cylinders recover themselves and make preparations to traverse the region previously occupied by their own prolongations. Waller, on the authority of S. Mayer, asserts that this is purely a normal process, because axis clyinders are constantly dying and new axis cylinders are being developed to take their places. It would be interesting to learn if these new axis cylinders are derived from the old nerve cell or if a new nerve cell arises and spins a new axis cylinder. Further, the origin of the new nerve cell would be interesting to learn, and if it arises from the old nerve cell, and how division of the nerve cell occurs. Many, indeed I think I may say most men who have given attention to this subject, are doubtful as to the formation of new nerve cells after adultism has been reached, and so far as I know divison of nerve cells has not been noticed save in fœtal life.

How the unnerved part may recover sensation.—The central end of the nerve fibre that is still in connection with the spinal cord or spinal ganglion, does not degenerate beyond the first node of Ranvier above the point of section. The axis cylinder during the few days following section swells somewhat and hypertrophies, forming what has been likened to a growing point and which is exactly similar to the free extremity of the developing axis cylinder in the embryo. Soon this growing point splits and gives origin to several fibrils, which are new axis cylinders, and these commence to grow towards the periphery. These axis cyclinders grow through the cicatricial tissue occupying the site of the operation wound, and the rate of growth as well as the return of sensibility to the unnerved parts depends upon the character of the cicatricial tissue. If the tissue is small in amount and loose in character the axis cylinders soon traverse the field of operation and reach the parts below. If, however, the tissue is great in amount and dense and hard in character, the course of the growing axis cylinders is impeded. We see here, therefore, the utility in removing a fairly large piece of nerve as distinguished from mere section, for all things being equal there will be a greater amount of tissue to grow through and a greater distance to traverse before the insensitive parts are attained. Connective-tissue corpuscles or Vignal's corpuscles come to be applied to the new axis cylinders, and a medullary sheath and neurolemma are formed as during embryonic development. Having crossed the cicatrical tissue the axis cylinders seek out the degenerated remains of the former nerve, and they grow along its course. Sometimes, it is said, the axis cylinders thread the neurolemma sheaths which still remain, but it is more likely that the degenerated and altered nerve acts as a director and favours the advance of the axis cylinders. However, the nerves find their way, and there appears to be good evidence in support of what has just been noticed. By and by the axis cylinders come to occupy a position at the periphery of the limb practically similar and on all fours with those that have degenerated and gone. Vanlair, from his experiments upon dogs, found that the new axis cylinders grew out of a dividend sciatic nerve at the rate of a millimetre (1-25 inch) a day, say an inch a month. We may, therefore, after considering the condition of the wound and of the new tissue filling it up, estimate or give an idea as to the length of time that may elapse before sensation may return and lameness reappear if the diseased parts have not been repaired. That sensation may return is well known, but the cases after section of a nerve followed by immediate union, report says that sensibility or movement returned, are not tc be trusted. If sensation does return we may infer that the nerve has not been divided, only benumbed, or that sensation is still perceived through some aberrant branch persisting and which has escaped section. Experiment has failed to supply a single case where, after section and immediate suture has been effected, sensation has returned within a few days. Nor does it seem possible even under the most favourable circumstances that the severed ends of fibres can be brought into exact approximation each to each, and even if such a feat were possible we can scarcely expect that immediate union would ensue. In the treatment of severed nerves, in order to facilitate the growth of the new axis cylinders from the central end of the divided nerve, suturing of the divided ends is of service. As we have seen, the peripheral end of the divided nerve will degenerate, but its remains will act as directors for the new axis cylinders and assist their extension outwards. Sutures are made through the epineurium and the two ends are drawn together, and it is directed that the material for suture should be a material easily absorbed, such as cutgut. Similarly, pieces of decalcified bone are employed, the Haversian canals permitting the passage of the axis cylinders into the peripheral nerve sheaths that are also connected with the bone by suture. A portion of another nerve taken from another source, another animal, will do. It is sutured between the ends of the divided nerve, and acts merely as a director, the axis cylinders growing along the empty sheaths. Transplantation of nerve never exists save in the imagination of too sanguine experimenters. We have said already, and we emphasise the statement, that the essential part of a nerve fibre once severed from its nurse the nerve cell must irretrievably perish, and once a nerve fibre has been cut through the area supplied by that fibre is cut off from all connection through that fibre with the nerve centres until such a time occurs that the axis cylinder grows again from the end above the section, from the end still in connection with the nerve cell. Weeks and months may elapse before sensation returns, the period of the reappearance of sensation being more and more remote the greater the obstacles put in the way of the nascent axis cylinder. Assist its course by directing its path into the old channels, and we may hasten return of sensibility to part, but we may never expect by immediately suturing together the ends of a severed nerve to have an immediate return of sensations. Such is physiologically and histologically impossible.

After the discussion which followed, Mr. Hill pro-

posed a hearty vote of thanks to Professor Mettam, seconded by Mr. Gibson, and carried unanimously.

Professor METTAM having suitably replied, Mr. Awde proposed, and Mr. Dobbing seconded a vote of thanks to Mr. Roberts for having acted as President during his two years of office, which was carried unanimously. The members then adjourned for tea in the hotel.

W. AWDE, *Hon. Sec.*

EXTRACTS AND NOTES.

THE CONGRESS ON TUBERCULOSIS.

The second sitting of the Congress was devoted to the discussion of the second and third divisions of the programme dealing with the causes of tuberculosis and the prophylactic measures that can be taken to prevent its development.

Professor Frænkel dealt in a very interesting discourse with the question of tuberculous infection. He pointed out that the specific bacillus of tuberculosis only thrives in the living body. Apart from the body it ceases to multiply and is soon destroyed by the influence of light and by loss of moisture. It is therefore, as a rule, only found in the immediate neighbourhood of diseased persons, and it is incorrect to speak as if there was everywhere a general liability to infection. Again the human body is only in a very limited degree susceptible to infection, and it requires a repeated absorption of large quantities of the *bacillus* to set up tuberculosis. This explains why the disease spreads almost wholly within families or among people who live crowded together in ill-ventilated work-rooms or sleeping-rooms. The chief source of infection lies in the dried-up particles of tuberculous *sputum* or phlegm distributed in the air by coughing or spitting.

Professor Pfeiffer lectured on the still somewhat obscure subject of secondary infection—*i.e.*, with the fact that other disease germs, *streptococci*, etc., combine with the tubercle bacillus to create the special symptoms of consumption.

Professor Löffler discussed the question of hereditary tendency towards tuberculosis. Of this there is no proof at all. There is no natural immunity from or predisposition to tuberculosis, though, of course, general or local weakness would always render the body less capable of resisting infection. The cases in which children are born infected with tuberculosis only occur when the mother is already in the last stages of the disease, and are so rare as not to be a matter of any practical importance. In any case, the notion of heredity is appropriate only to organic disease, and not to a disease which is due to a parasite introduced by infection from without.

Professor Kirchner delivered a lecture on the subject of the marriage of tuberculous persons. He suggested that public opinion should strongly discourage the early marriage of any one whose appearance or family surroundings indicated any danger of tuberculosis, or the marriage of any persons who have suffered from tuberculosis till at least two years after the disappearance of the last symptoms of the disease. If tuberculosis has once appeared in a family every precaution should be taken in the way of extreme cleanliness, of keeping the sick person's room well-ventilated and from time to time disinfected, and in keeping all his belongings, especially his linen, separate from those of the rest of the family.

During the proceedings a telegram was received from the German Emperor expressing his best wishes for a successful result from the labours of the Congress.

Later in the afternoon the members of the Congress were received by the Imperial Chancellor, Prince Hohenlohe, at a garden party in the grounds of his palace. This evening a special performance of *Die Meistersinger* is being given by the Emperor's orders to the Congress in the Royal Opera House.

Owing to some official mistake, the origin of which is not very clear, most of the British and colonial delegates were omitted from the printed list of delegates, and were not on the delegates' platform at the opening ceremony. To the names already given should be added those of Sir Herbert Maxwell, M.P., F.R.S.. and Dr. Pye Smith, F.R.S., appointed by her Majesty's Government; Dr. E. A. Farrell and Dr. F. A. Kirkpatrick, representing Canada; Dr. W. C. Wilkinson, sent by New South Wales; the Hon. J. A. Cockburn, M.D., and the Hon. W. P. Reeves, the Agents-General for South Australia and New Zealand; and Surgeon-Lieutenant-Colonel A. Crombie, the delegate of the Indian Government. The British Empire is thus represented altogether by 15 official delegates, not including a very considerable number of private members who have come over to the Congress.

When the Congress met on Thursday morning the Duke of Ratibor, the president, read the following telegram from the German Emperor in reply to a message of respect sent to His Majesty by the Congress on the previous day:—

"Most agreeably touched by the message of respect from the Congress for combating tuberculosis as a national disease, I request you to convey to the Congress my thanks and my best wishes for a happy and useful issue. May the united labours of medical science, philanthropy, and love of one's neighbour be successful in putting a check upon the ravaging disease, and in mitigating the baneful effects to which the German people, both as a whole and as regards individual families and their members, are exposed through tuberculosis."

At the end of the discussion on Thursday Professor Virchow delivered an address on the prevention of the spread of tuberculosis through articles of food. The veteran savant, who was received with great applause, declared that the fears entertained with regard to the meat of cattle which had suffered from tuberculosis were sometimes exaggerated. The flesh of the part not actually affected was in no sense dangerous. On the other hand, the question of milk was much more serious, and a single cow could depopulate whole villages. The only radical cure was to kill the infected animal. Sterilising the milk was by no means an absolute protection. He believed that, just as the war with trichinosis had been carried to a successful issue, the struggle with tuberculosis would also be successfully settled. But the intervention of legislation was certainly necessary.

The discussions of the Congress this (Friday) morning dealt with the question of treatment. Dr. Curschmann, the first lecturer, pointed out that a complete cure was in a sense extremely rare, but that a cessation of the destructive process amounting to cure for most purposes was not infrequent. In modern sanatoria he estimated the cures as reaching as high a figure as 20 per cent. The really important thing is to deal with the disease in its early stages; after a certain point, when secondary infection had set in, there could be no reasonable hope of cure. It was very doubtful whether climate exercised any great influence. Wherever there was pure fresh air and not too sudden changes of weather cure was possible.

Dr. Brieger delivered a lecture on the employment of Koch's tuberculin, both the old preparation and the later ones, and showed that the pessimistic reaction against specific treatment which had followed the enthusiasm created by Koch's discoveries after the first failures was absolutely unjustified. Tuberculin has undoubtedly a

strong healing power if the course of treatment is persisted in long enough, even in cases where secondary infection has already set in. In any case, it is invaluable as a means of diagnosis, discovering tuberculosis even in its earliest stages.

Sir Hermann Weber lectured on the effect of different sorts of climate, and various other addresses were given on the value of iodoform, creozotal, vaseline injections, hydropathic treatment, etc.

The Duke of Ratibor, president of the Congress, has received the following telegram from Queen Victoria, dated Windsor Castle, May 25th :—

"I beg your Excellency to express in my name to the the Lung Tuberculosis Congress my best thanks for the good wishes tendered to me. May God bless the noble efforts of the Congress !

VICTORIA."

Saturday's meeting of the Congress was occupied with the discussion of the value of sanatoria.

Professor von Leyden delivered a lecture in which he dealt with the growth of the movement for public sanatoria for consumptives. He referred in complimentary terms to England, which had taken the initiative and still stood at the head of the movement, and went on to give the history of the movement in Germany which had finally led up to the convocation of the present Congress, the real object of which was to give a stronger impulse to the schemes under discussion.

Herr Meyer, dealing with the financial aspect of the question, pointed out that in Germany there were some 50,000 patients who were proper subjects for treatment in consumptive homes. Reckoning an average stay at one of these homes at six months, that meant 25,000 beds, or an initial cost of £5,000,000 annually. But of course the whole national scheme could not be organized at once. The interest of employers, of friendly societies, and of the State insurance societies was equally concerned in the prevention of tuberculosis, and the State could therefore rightly expect from them the financial support for a general scheme of national cure.

Dr. Friedeberg pointed out to what a large extent consumption was a disease of the poorer classes, and declared that the first condition for its extirpation in Germany was that German workman should have the fullest right of combination in order to better their social and material welfare.

A large number of other lectures followed, at the end of which the Duke of Ratibor closed the Congress with a short speech, in which he referred to the extremely satisfactory and hopeful result of its discussions. Professor Brouardel replied in the name of the foreign delegates.

Some 80 of the delegates of the Congress were received at Potsdam on Sunday morning by the Emperor and Empress. Their Majesties conversed for nearly two hours with the delegates, displaying a keep interest in all the details of the question. The Empress warmly congratulated Professor Grainger Stewart on his excellent speech at the opening of the Congress.

There can be no doubt that the Congress as a whole has been a great success. That it has been so is largely due to the interest taken in it by the Empress and the and to the energy of the president, the Duke of Ratibor, and the organizing committee. It was hardly to be expected that any new and startling discovery would be brought forward, but a great deal has been gained by a general review of the results hitherto arrived at and by the free interchange of ideas between the students of different nations. There is a general consensus of opinion that the treatment of consumptives in sanatoria has undoubtedly good results in a large number of cases. But there is a considerable scepticism in some quarters as to its application on a very large scale owing to the cost involved in a method in which abundant and varied food and a very considerable period of leisure are essentials. There are many who think that it would be better before going to great expense in the building of consumptive homes to devote more care to the scientific bacteriological study of the disease itself. It is a pity that Dr. Koch, the greatest of living bacteriologists, was unable to attend the Congress and give the complete history of his own investigations. But there is no doubt that the reaction against the specific treatment has been excessive. Koch's tuberculin, especially in its newer form, is certainly by far the best test for detecting the presence of tuberculosis, and there is a great deal of evidence to show that if injected frequently it will cure the disease in its earlier stages and arrest it for some time even after secondary infection has set in. That such a treatment, if it could be perfected, would be much more effective and, from the national point of view, much more economical than the rather unscientific or negative treatment in sanatoria cannot be questioned.—*The Times.*

A DOCTOR'S INDICTMENT OF THE TUBERCULIN TEST.

The generally-accepted theory as to the cause of tuberculosis has found an opponent in the person of a Scotch physician, who, in the course of a recent lecture at Hawick, said that he believed that too much had been written in the daily papers about tuberculosis, and much had been written by men, many of them without sufficient practical experience to be able to offer an opinion worthy of acceptance. They lived in an age which they might aptly term the bacterial or microbic, for now some considered that every disease had a microbic origin, and amongst these diseases the microbe had been found which was said to cause consumption.

As causes of this disease, two of our most important articles of diet had been receiving special attention—milk and beef. To prove that these foods played an important part in the spread of the disease, a large number of laboratory experiments had been carried out on the lower animals, and to those who had carried out the experiments everything affirmative had been proved ; but to men whose lives had been spent in the practice of medicine, nothing had been proved. Personally, he had never known a case of tubercle to arise from either of these articles of diet, and his experience coincided with men of larger experience, and men occupying a leading position in the profession. Following upon the theory of milk and beef being productive of the disease, a test for tubercule, known as tuberclin, had been introduced. This tuberculin he might call a chemical compound of irregular action. This substance was injected into the bodies of the animals, and if the temperature rose the animal wes supposed to be suffering from tubercle. Professor M'Fadyean had shown that the test was not to be relied upon ; and he (Dr. Hamilton) believed that, as at present prepared and used, it was, in plain language, a humbug, which could now have only a short life.

He believed the main cause of the disease to be poverty. The poor were insufficiently fed, their houses were of insufficient size, and often badly ventilated, and their poorness made them indifferent to the laws of comfort. Being insufficiently fed, their offspring were weak when born, and, like their parents, were not sufficiently fed during their maturing years. Through poverty they were every year producing a large population liable to be attacked not only by tubercle, but by every prevailing disease ; they were, in fact, perpetuating a disease-producing stock.

The causes which produced poverty were legion, yet one above all others stood prominently before them—

alcohol. Therefore, alcohol was the chief cause of tubercle in man. The second great cause was too early marriages, and marriages of consanguinity. The third cause was improper feeding of children. Cheap tea had here its danger, as it had displaced the old-fashioned porridge and milk, and often, too, that splendid dinner for a hungry boy, Scottish broth. The fourth cause he held to be too long hours in badly-ventilated shops; this was especially a cause amongst girls.

Personally, he was opposed to the notification of the disease; he did not believe in the tuberculin test as at present used; and, from his own practical experience, he believed sterilised milk was useless as food.—*The Cable*

BACTERIOLOGY IN TRINIDAD.

We have received a copy of the Trinidad *Mirror* which contains an account of Professor Crookshank's visit to the Colonial Hospital of Trinidad and the remarks made by him on that occasion. After saying that nothing had given him greater pleasure during his visit to the West Indies than an inspection of the Colonial Hospital, Prof. Crookshank praised its administration and made several important criticisms and suggestions. We will quote these remarks *verbatim*:

"There is evidence on all sides of capable administration and of a thoroughly efficient and zealous medical and surgical staff. Every attention is given as far as possible to carrying out Listerian principles. The ventilation of the wards is admirable, and the attention to general sanitation is satisfactory. Nevertheless there is room for improvement. I would draw attention to the proximity of the ward for special obstetrical operations to the room used for the sanitary service of the general wards. I would also urge the need of more complete classification of the patients and that admission should not be given to cases of leprosy and to other cases (which need not be specifically mentioned here) which are quite unsuitable for admission to the wards of a general hospital. Lastly I would point out the splendid opportunities which exist for the investigation of the cause and prevention of tropical diseases, a matter which is receiving at home the attention of the Colonial Secretary of State and of the general public. Such work is of the greatest possible importance to our colonies and indirectly to the mother country. Great efforts are being made in England to train medical men (for service in the colonies) in the modern treatment and prevention of tropical diseases. In England there are opportunities for studying imported cases of tropical diseases and a training can be given in bacteriological methods. Where, however, as in Trinidad, there is a large colonial hospital, that is obviously the best place in which the investigation of tropical diseases can be carried on. The appointment of a medical officer who has devoted his time, and is prepared to continue to give up his time, to preventive medicine and bacteriological research in Trinidad, is a question which it is hoped will receive the immediate attention of the Colonial Government and the unanimous support of an enlightened and progressive public."

The suggestions made with a view of promoting bacteriological research and better sanitation in Port of Spain were also brought to the notice of his Excellency the Governor of Trininad in a memorandum on the subject submitted by Professor Crookshank. Referring to the material for investigation at the Colonial Hospital, Professor Crookshank pointed out how much still remained to be done in investigating the nature of malaria, and that in the case of yaws and many other tropical diseases there was an open field for research. Professor Crookshank then put the case very strongly in support of his suggestion for the appointment of a medical officer of health and the equipment of a small laboratory. "The general practitioner in the colony, if he is to keep up with modern practice, must be able to have doubtful cases of diphtheria, malaria, typhoid fever, &c. Bacteriologically examined, and he must be able to apply the antitoxin treatment. The veterinary surgeon is fighting without the modern weapons of defence if he is unable to examine milk for tubercle bacilli, or to test horses for glanders by the use of mallein, or to test cows for tuberculosis by means of tuberculin. The absence of any facilities for scientific research at the hospital, the demands of the general medical practitioners and of the veterinary surgeons in the colony, point to the need for a bacteriological laboratory either at the hospital or as an extension of the existing government loboratory. The question of the appointment of a colonial bacteriologist is one to which I would earnestly draw the attention of your Excellency. I hope that before long the colonial government may see its way to combining the work of a medical officer of health for Port of Spain with the duties of colonial bacteriologist."—*Lancet.*

THE BUREAU OF ANIMAL INDUSTRY, U.S.A.

The work of the Bureau of Animal Industry of the Department of Agriculture in suppressing and preventing diseases of animals has grown to be of great importance. The bureau now inspects all importations of stock animals and annually refuses to accept many diseased animals shipped from Europe. The chief of the bureau has recommended that horses should be included in the list, there being no reason why they should be exempt as they are able to carry contagious diseases as well as other stock. The bureau's work in demonstrating the efficacy of a serum cure for hog cholera has attracted much attention in various parts of the country and has developed some scepticism. The operations of the bureau have now been carried on for two full seasons and the results are conclusive. The next step is to convince the Legislature in some of the hog-raising States of the advisability of taking up the treatment for the farmers of their respective States and of having arrangements made to supply the serum to those who wish to try it. In such cases the Department of Agriculture stands ready to lend its aid and to contribute its knowledge and experience in the preparation and administration of the serum. The serum used is a combined serum intended to prevent or cure either hog cholera or swine plague. It is prepared by gradually inoculating a horse or other subject with the blood of a cholera-diseased hog until it becomes immune, when its blood is drawn off, the clot is extracted, and the remaining serum is used in hypodermic injections against these two diseases. It is injected in the blood of the diseased hog and usually cures it. The percentage of cures during the last two years of experiment has been about 85, whereas in untreated herds attacked by the disease the percentage of deaths is usually about 85. Another good work of the bureau is the treating of blackleg among cattle. This disease affects the young stock in herds, killing from 10 to 20 per cent. where it obtains a foothold. The bureau's treatment for this disease is inoculation and losses are diminished to 1 per cent. The terrible disease of cattle called pleuro-pneumonia, which threatened the entire cattle industry of the United States and subjected all imported cattle to suspicion, has been entirely eradicted by the bureau's efforts. In 1887 the bureau work began on this disease and found a chaotic state of affairs in cattle-rising by reason of it. Since 1892 not a single case of pleuro-pneumonia of cattle has been discovered in the United States. A problem now interesting the bureau is the

Texas fever of cattle. When it began work in connexion with this disease almost nothing was known concerning its origin. It has been discovered to consist in a micro-organism which feeds upon the red corpuscles of the blood and which is carried from one animal to another by the southern cattle tick. If these ticks can be eradicated the disease is not transmitted. Dips have therefore been used to kill the ticks and quarantine regulations have been established by the bureau, so that Texas fever can now be said to be under control. No animal disease causes greater loss annually than sheep-scab. For years the greatest mystery enveloped this trouble. It was not known whether it resulted from blood disorders or from outside influences, but the Bureau of Animal Industry comes out with a clear statement that investigation shows that the disease is simply caused by a parasite which eats into the flesh of the sheep, but it can be easily killed by a home-made "dip," and that it is so easy of eradiction that there is really little excuse for its being found in any flock.—*The Lancet.*

"PSEUDO-TUBERCULOSIS."

The report of the special committee appointed by the Pathological Society of London to consider the nomenclature of the condition sometimes described as "pseudo-tuberculosis" will be received, we think, with favour by the profession. The addition of the prefix "pseudo" to a pathological condition or a disease is to be deprecated and is sure to give rise to confusion. and the suggestions made by the committe will, it is to be hoped, render the term "pseudo-tuberculosis" superfluous and cause it to be altogether discarded.

It is, however, to another portion of the committee's report that we wish to draw attention and that is as regards the employment of the terms "tubercle" and "tuberculous." These two words, together with another term, "tubercular," have been very loosely used, many, if not most, writers apparently considering them to be entirely synonymous. For our part we have for years past endeavoured very carefully to differentiate in the use of the adjectives "tuberculous" and "tubercular," meaning by the former the lesions caused by the disease produced by the tubercle bacillus of Koch, and by the latter a formation presenting the physical appearance of a nodule not so caused. We especially welcome, therefore, the recommendations of the committee as expressed in their report that the word "tubercle" should no longer be used as a general anatomical term, but should be only employed as a designation of the nodular lesions produced by the tubercle bacillus. To prevent ambiguity, however, it might be still better if all lesions having the form of "tubercles" were called generally "nodules,' those produced by Koch's bacillus being distinguished as "tuberculous nodules," and if the nodules produced by other causes were in like manner distinguished by a prefix indicative of their cause. We notice that the term "tubercular" does not appear in the report and we trust in future that its use as a synonym of "tuberculous" may be abandoned. Medical phraseology is already sufficiently copious and any redundant or ambiguous words or phrases may well be obliterated. Many committees have from time to time been appointed by various societies; some have done good work, others have so delayed the issue of their reports that their suggestions have greatly lost their value owing to the lapse of time, whilst the valuable efforts of others have never been known beyond the actual members of the committee. The committee, however, to whose report we have briefly referred have done their duties promptly and well and deserve the thanks, not only of the society of which they were representatives, but of the whole scientific world.—*The Lancet.*

ARMY VETERINARY DEPARTMENT.

By command of the Queen a Levée was held on Monday afternoon, May 29th, at St. James's Palace by his Royal Highness the Prince of Wales, K.G., on behalf of Her Majesty.

In the List of presentations to the Prince of Wales we note the name of Vet.-Lieut.-Colonel G. J. R. Rayment, A.V.D., on promotion, by Major-General J. F. Maurice, C.B.

On very high authority we are informed, in reference to the subject matter of a recent Comment on the officers of the Veterinary Department and combatant rank, that there is now, contrary to our assumption, great difficulty in getting sufficient candidates for the A.V.D. There are several causes at work, but the chief one seems to be that civil life offers greater advantages in many respects, while Army life becomes daily more exacting and less remunerative. There is preliminarily a very severe educational test identical with that imposed upon candidates for the medical profession, and by the same body; there is a minimum curriculum of four years before examination for diploma, and the whole cost of instruction is costly. Then there is, strange to say, the veterinary "crammer" to be enlisted on the side of the Army candidate who seriously aspires to success. On the other hand, the Veterinary officer remains in the Army a caste apart, now that all departments have combatant rank and titles. The remedy however appears to be less distant than we imagined. If, as we are informed, there is likely to be a dearth of A.V.D. candidates, with a corresponding lowering of qualifications, the effect will soon be apparent, and once it shows itself, not only combatant rank but many more tangible advantages will be conferred almost unasked. A little patience and continuation of the commendable attitude of dignified acquiescence, and absence of all agitation which has characterised the Department hitherto, will in due time be rewarded in the desired manner. This is sufficiently certain to admit of accurate prophecy.—*The Broad Arrow.*

"Tubercle very rare?"

Dear Sir,

I enclose a cutting from the *B. M. Journal* of last week. I am pleased to hear "Tubercle" is so scarce, what do you think?—Yours faithfully,

JOSEPH H. CARTER.

"Tuberculosis in Cattle was the subject of a question by Mr. Channing on Friday, May 19th, who wanted to know whether there was proper inspection of the carcases slaughtered at Deptford. The President of the Local Government Board seemed to think the inspection was thoroughly done, and pointed out that tubercle was very rare in animals so killed, only two cases having been found last year among the many thousands slaughtered.

More Tuberculosis "Experiments."

At the monthly meeting of the R.A.S.E. on Wednesday, 31st ult., The Hon. C. T. Parker, from the veterinary committee, reported that a licence for the exhibition of pigs at Maidstone, promised by the President of the Board of Agriculture, had been received. The committee had given further consideration to a suggestion of the Highland and Agricultural Society as to the elimination of tuberculosis, and it had been decided to recommend that experiments should be instituted by the Society on a limited scale at the Royal Veterinary College. The Council sanctioned the commencement of these experiments forthwith, and placed a sum of money at the disposal of the committee for the purpose.

OBITUARY.

OLIVER THOMAS SLOCOCK, M.R.C.V.S., Carlow, Ireland. Graduated, Lond., March, 1873.

Mr. S. H. Slocock, of Hounslow, writes: "I regret to inform you of the death, from pneumonia, of my brother, O. T. Slocock, of Hanover House, Carlow, Ireland. He died on May 30th, at Upton, Slough. He qualified from the London College in March, 1873, and entered the Army and was stationed at Woolwich, and in 1874 went into private practice in Carlow, and has since then there carried on an extensive practice, and has for 24 years held the appointments of veterinary inspector for the County of Carlow, and for the Baltinglass Union

A well known veterinary surgeon of the old days passed away last week in the person of Mr. James Wilson, formerly of the Vale of Alford, Aberdeenshire. About thirty years ago Mr. Wilson was veterinary surgeon in the district of Dufftown, Banffshire. He afterwards proceeded to the Vale of Alford, where he practised with success for nearly twenty years, under the patronage of Lord Forbes. While in Aberdeenshire, in addition to his professional work, he was inspector of the poor, and took an active part in the public life of the district. A good many years ago he took a lease of the farm of Cairnwhelp, in the parish of Cairnie, remaining there for five years. On retiring from active life twelve years ago, he resided in Huntly to the year 1897, when he removed to Dufftown, finally living with Mr. William Mackie, his son-in-law, at the farm of Lettoch, about two miles from Dufftown, where he died. Mr. Wilson is survived by Mrs. Mackie and five sons, the latter of whom all occupy prominent places in the world, the eldest son, John, being an inspector of schools in Stirlingshire; while another is the Rev. William Hay Wilson, of Dingwall. A third is Dr. C. B. Wilson, who holds an important appointment in Sheffield. Mr. Wilson was highly respected by everyone who knew him.—*N.B.A.*

CORRESPONDENCE.

THE ANNUAL MEETING.

Sir,

I am sorry to see by your last issue that you anticipate a small attendance, and no discussion at above meeting on 7th June.

I understood several matters of great interest to the general body of practitioners all over the country, viz., Advertising, Commissions and tipping, Quackery, the Sale of horse medicines by chemists, etc., are to be brought before the notice of the Council, and a fund if necessary started for the purpose of protecting our interests.—Yours faithfully,

ROBERT ANDERSON, M.R.C.V.S.

London, May 30th.

PUBLIC VETERINARY DUTIES.

Sir,

In reply to the enquiry signed "Scapula," any Act or Regulations required can be bought direct from the Sanitary Publishing Company, 14, Bartholomew Close, London, E.C.—Yours truly,

J. E. MILLER.

Homewood, Patrington, May 29th.

CARLISLE "CRUELTY" CASE.

Sir,

I much regret that Mr. Hewson should have taken amiss my letter which appeared in *The Veterinary Record* on May 6th. My only object in writing was to show that I did not deserve the expressions of ill-feeling which had been so thoughtlessly made, and the very last thing I expected was to have been taken as reflecting upon Mr. Hewson.

As I do not think any useful purpose will be served by a controversial correspondence on purely personal questions, I only assure Mr. Hewson that his feeling that the witnesses for the prosecution "must have some other interest in the case than merely the welfare of the profession or even the poor cow" is entirely erroneous.—Yours faithfully,

G. ELPHICK.

Newcastle-on-Tyne.

Sir,

It would be interesting to know what the above case cost the R.S.P.C.A. I am given to understand that Mr. Colam, senior, is a head official of the Society that his son, Mr. Colam, junior, generally finds himself briefed in cases of special pleadings and appeals, no matter in what part of the country the case is to be heard.

I am likewise informed on good authority that by bar etiquette barristers cannot appear in cases on any other circuit except their own unless they receive a special fee of at least 20 guineas, and in addition take a junior counsel to assist them at a cost of probably another 5 guineas. Mr. Colam, junr., is, I understand, on a southern circuit, yet he appeared in the above case on the northern. It would, therefore, be well to know if it costs the society at least 25 guineas every time he takes cases off his circuit, even when the Society wins.

The point is important, for I have made enquiries and am assured that where the Society succeeds the extra fees of 25 guineas would be disallowed, and had they beaten Mr. Hewson they would have been left to pay these themselves. I think it is due to the subscribers to know whether or not the funds of the Society are thus being spent.

HENRY THOMPSON, M.R.C.V.S.

Aspatria.

HEWSON'S APPEAL FUND.

	£	s.	d.
Amount brought forward	43	8	6
Mr. W. A Taylor	1	1	0
John Caldwell		10	0
Wm. Hodgson		10	0
F. G. Edwards		10	6
R. C. Edwards		10	6
John M. Watson		10	0
Joseph Lyons (2nd donation)		5	0
Joseph Donald		10	0
Henry Howse		10	6
Joseph Kendall		10	0
John Steel	1	0	0
Messrs. H. and A. Hunter	1	1	0
	£50	17	0

HENRY THOMPSON, *Hon. Sec. & Treas.*

Aspatria.

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Prof. Penberthy, Messrs. C. Pack, H. Thompson, J. M. Tate, J. Webb, G. Elphick, W. Awde, H. Dyer.

The Edinburgh Evening News.